Name and Surname:

DNI:

RULES:

1. The exam will last 1 hour and a half.
2. Exams written in pencil will not be corrected.

Exercise 1 (0.3 points)

Create a function called “DataPeople” with the data of table 1.

	Weight	Height
Ana	75	172
Pepe	65	170
Nacho	85	185
Bea	55	160
Gema	75	170
Alba	80	180

Table 1.

A) Change the height of Ana: 165.
B) Show Nacho’s weight
C) Insert two data by keyboard, a weight and a height. With these data check:
    a. how many people have a weight and height greater than the data inserted
    b. how many people are heavier than the inserted data
D) Show the average weight and average height

```
DataPeople<-function()
{
tabla<-matrix(c(75,65,85,55,75,80,172,170,185,160,170,180),ncol=2,nrow=6)
dimnames(tabla)=list(c("Ana","Pepe","Nacho","Bea","Gema","Alba"),c("Weight","Hei
ght"))
tabla[1,2]=172
print(tabla)
print("Insert a Weight: ")
W=scan(,,1)
print("Insert a Height: ")
H=scan(,,1)
ContWandH=0
ContW=0
for(i in 1:nrow(tabla))
{
   if((tabla[i,1]>W)&(tabla[i,2]>H))
            ContWandH= ContWandH +1
   if(tabla[i,1]>W)
             ContW= ContW + 1
}
     print("Number of people: " )
     print(ContWandH)
     print("Number of people weight: " )
    print(ContW)
```

}

Exercise 2 (0.4 points)

Write a function that checks that a vector contains the same numbers:

- from the beginning to the middle of its elements

- from its middle to its end

If the number of elements is not divisible by 2, the user must be informed.

NOTE: You mustn't divide the vector into 2 vectors, you have to do the check on the same vector.

EJEMPLOS:

A=2,1,3,4,2,3 No repetition of the numbers	A= 2,3,5,2,3,5 The numbers are repeated
A=2,1,3,2,1 The vector is not divisible	A=1,2,3 The vector is not divisible

```
Ej2<-function()
{
  A=c(2,1,2,2,1,2)
  if(length(A)%%2!=0)
   print("El vector no es divisible")
  else
   {
     i=1
     j=(length(A)/2)+1
     seguirComprobando=TRUE
     while(j<=length(A) & (seguirComprobando==TRUE))
     {
          if(A[i]!=A[j])
        seguirComprobando=FALSE
       i=i+1
       j=j+1
     }
    if(seguirComprobando==TRUE)
     print("Se repiten los números")
    else
     print("No se repiten los números")
    }
 }
```

Exercise 3 (0.3 points)

Write a function that defines a vector, for example, A=2,1,3,4,2,3.

The function should ask the user for data with the scan() function, as many numbers as the maximum number of the vector.

The function should check:

- If the data entered by the user is even, it should check if the elements in the even positions match the number entered, if so, remove it from the vector.

- If the user enters an odd number, check if the elements in the odd positions match the number entered, and if so, remove it from the vector.

Ejemplo:

Insert 4 data 1: 1 2: 2 3: 3 4: 4 Read 4 items My vector is: 2 1 3 4 2 3 [1] 2 1 3 4 2 3 [1] 1 [1] 2 1 3 4 2 3 [1] 2 [1] 2 1 3 4 2 3 [1] 3 [1] 2 1 4 2 3 [1] 4 Final vector: 2 1 4 2 3	Insert 4 data 1: 4 2: 3 3: 2 4: 1 Read 4 items My vector is: 2 1 3 4 2 3 [1] 2 1 3 4 2 3 [1] 4 [1] 2 1 3 2 3 [1] 3 [1] 2 1 2 [1] 2 [1] 2 1 2 [1] 1 Final vector: 2 1 2

```
Comprobar<- function()
{
  A=c(2,1,3,4,2,3)
  cat("Inserte", max(A), "datos\n")
  datos=scan(,,max(A))
  i=1
 cat("el vector de los datos",datos, "\n")
  while (i<=length(datos))
  {
          print(A)
          print(datos[i])
          if(datos[i]%%2==0)
          {
```

```
            j=2
            while(j<=length(A))
            {
              if (A[j]==datos[i])
              {
                A=A[-j]
                j=j+1
              }
              else
                j=j+2
            }
          }
          else
          {
            j=1
            while(j<=length(A))
            {
              if (A[j]==datos[i])
              {
                A=A[-j]
                j=j+1
              }
              else
                j=j+2
             }
           }
        i=i+1
  }
  cat("el vector A", A, "\n")

}
```